J. HYM. RES.
Vol. 14(2), 2005, pp. 121–136

Cladistic Assessment, Key and Description of Two New Neotropical Genera and Species of Gabuniina (Hymenoptera: Ichneumonidae: Cryptinae)

Alexandre P. Aguiar

Museu de Zoologia, Universidade de São Paulo, Av. Nazaré 481, Ipiranga, São Paulo SP, Brazil 04263-000; email: aguiar.2@osu.edu

Abstract.—The Cryptini ***Fenixia* n. gen.**, from the Brazilian Atlantic Forest, and ***Dineotropica* n. gen.**, from the Amazon basin, are proposed, described, and cladistically compared with literature data for representative species of all genera of the subtribe Gabuniina and 38 outgroup species. A total of 72 species and 51 characters are evaluated. Implied weighting results suggest that *Fenixia* is closely related to *Lagarosoma* Gupta, while *Dineotropica* is closest to *Cestrus* Townes. Unweighted analyses were inconclusive, but implied weighting results support the monophyly of Gabuniina essentially as defined in the literature, and suggest that *Wuda singularis*, and perhaps a few other taxa of Ceratocryptina, might be part of, or a sister taxon of that subtribe. The species ***Fenixia curta* n. sp.** and ***Dineotropica lissa* n. sp.** are described and illustrated. A key to genera of neotropical Gabuniina is presented.

The subtribe Gabuniina was proposed by Townes (1970) to include a worldwide group of cryptine wasps currently with 31 genera and 309 described species (Yu and Horstmann 1997). Members of this subtribe seem to attack xylophagous larvae of Coleoptera and Lepidoptera, exhibiting a highly specialized body structure for this purpose, as noted by Townes and Townes (1962): head subspherical; body shape approximately cylindric; ventral tooth of mandible normally longer than dorsal tooth; fore tibiae dilated, having enlarged subgenual organs; antennal tip highly modified; ovipositor compressed, straight and stout, the lower valve with an apical dorsal lobe that encloses most of the tip of upper valve; and subapical metasomal segments enlarged, accommodating special ovipositor muscles. The specialized antennal tip is used to tap the wood, producing pulses of sound (Townes and Townes 1962, Henaut 1990, Otten et al. 2000); the echoes are detected with the enlarged subgenual organs (Vilhelmsen et al. 2001, Otten et al. 2003), providing information about the exact location of the host. Broad and Quicke (2000), discussing the adaptive significance of host location by vibrational sounding, further demonstrated that such tibial and antennal specializations are correlated with greater relative host depth, immobility of the host and idiobiosis.

Most gabuniines occur in the tropics and subtropics, but there are a few genera confined to the Nearctic region and some others which occur in the Palaearctic region (Gupta and Gupta 1983). Seven genera have been described for the Neotropical region, but only two appear to be common, *Digonocryptus* Viereck, and *Agonocryptus* Cushman. The group has never been extensively studied in South America and the two new genera proposed herein point to a much greater diversity of the subtribe in this region.

Comparative studies with Cryptinae, however, are challenging, both because of their extreme diversity, nearing 380 valid genera and over 4500 valid species, and because many of these taxa are also exter-

nally similar, while exhibiting a confusing array of subtle differences, making them difficult to recognize at first sight, complicating generic and supergeneric classification in particular. In an attempt to objectively assess these problems, the present work uses cladistic analyses with the aim of testing the validity of, and situating the proposed genera into, the tribe Cryptini. A final objective is to present a first, while not thorough, cladistic assessment of the monophyletic status of the subtribe Gabuniina based on external morphology, furthering the molecular analyses of Laurenne et al. (2003) with six gabuniine genera, most of them recovered as a monophyletic group.

MATERIALS AND METHODS

General.—This work deals exclusively with material acquired through an extensive program of field excursions and visits to entomology museums in Brazil, as part of a multi-institutional project developed along the years 2000–2004, now continued by the author in a new program. Specimens of neotropical countries unavailable in Brazilian museums were not examined for this work, but are targeted for study as part of the program in progress.

Morphological terminology follows Gauld et al. (1997); acronyms for collections follow Arnett et al. (1993). Drawings were prepared by Gláucia Marconato, under the author's supervision.

Selection of taxa and characters.—Cladistic analyses were performed exclusively for providing an objective evaluation of the proposed taxa, particularly in relation to published data. Accordingly, character selection and coding fit this aim only, and results were not explored for the internal phylogeny of Cryptini or Gabuniina.

Literature information was combined with original data, coded into a character matrix, and analysed with cladistic methods. The ingroup includes representatives of all described Gabuniina genera. A comparatively large number of outgroup taxa (38 species) had to be considered, as a response to the following problems. First, there is a lack of clearly defined sister-groups for Gabuniina and, at the same time, the current subtribal arrangement for Cryptini is highly artificial; with this, outgroup taxa had to be selected from numerous species apparently or supposedly related to Gabuniina. Second, extensive tests with different taxa or groups of taxa, during preliminary analyses, showed that reasonably stable results could only be obtained with a large number of outgroup taxa.

The character set has a slight emphasis on features habitually used for describing genera of Gabuniina. Many characters were coded directly from illustrations, and checked with the corresponding descriptions whenever possible. The considered taxa are described and illustrated in Townes (1970), Gupta and Jonathan (1970), and Gupta and Gupta (1983). Characters 1–2, 4, 6–8, 18, 30, and 40–43 (Table 1) were coded from the general descriptions of Townes (1970) for the genera. For these characters, all species of a given genus were coded with the same character state. Although this may contribute, during tree search, to species in the same nominal genus to end up grouped in one clade, therefore supporting the original concept, this scheme was ultimately adopted because the potential problem is only marginally relevant for the purpose of this study. Character 7, the percentage of variation of the fore wing length, was calculated by taking the difference between the largest and the smallest wing length registered for the genus, and dividing it by the smallest wing length value. Two apparently distinct tendencies (Fig. 1) were interpreted and coded as two distinct character states. Regression lines for Fig. 1 were calculated with smoothing splines (Venables and Ripley 1997), which draw the curve that best suits a given data set.

Phylogenetic analysis.—Tree searching

was performed with heuristic analyses in NONA, version 2.0 (Goloboff 1993b) aided by Ratchet (Nixon 1999a), and with implied weighting in PIWE, version 2.8 (Goloboff 1997), which resolves character conflict in favor of characters that have less homoplasy *during* tree search. Cladogram analysis was performed with WinClada, version 1.00.08 (Nixon 1999b), which also incorporates the program Ratchet. All multistate characters were first treated as unordered, then characters 20, 32 and 33 were reinterpreted from the initial trees, and run as ordered. At this stage, changes for character 20 were interpreted as 0←1→2 and the character was respectively recoded in the matrix as 1←0→2, to allow the respective changes to be accurately considered during tree searching.

For Ratchet, independent searches were performed with a sample of 5–8 characters, and 3000 iterations on each run. The resulting trees were submitted at once to NONA, screened with *best* and *unique*, which discard non-optimal trees and trees that are optimization-sensitive, and then submitted to increasingly exhaustive searches, as follows: swapping with max*, a procedure which also certifies that the trees found will belong to a "complete island" (cited from PIWE manual), and further swapping with ms*1, and jump*1 to jump*4, which search for better trees in different "islands" by generating slightly less optimal trees from the ones found before. All steps found more or better trees, except jump*4.

For PIWE the options "hold 10000, mult*100" were used, with resulting trees submitted to further swapping exactly as described above for NONA. Searches were performed with the default value for *K*, the constant of concavity (Goloboff 1993a) and for $K = 2$ and $K = 1$. Higher values of *K* (4–6) were not tested because the intention was to check the maximum influence that less homoplasious characters could have on the phylogeny.

RESULTS

Table 1 shows the character list and character state coding, and Table 2 presents the respective character matrix. Searches with NONA/Ratchet found 6531 most parsimonious trees of 560 steps, Ci 14, Ri 54. The respective strict consensus tree is almost entirely collapsed and only marginally informative for Gabuniina. For this reason, it will not be considered here. With implied weighting, results are as follows: searches with $K = 1$ found 3071 trees of fit 110.4; $K = 2$ generated 3 trees of fit 141.9; and $K = 3$, the default value, yielded 29 trees of fit 172.9. Results with *K*1 are not illustrated because they were generally similar to those obtained with *K*2–3, except that the correspondent consensus tree was considerably less well resolved, with 34 collapsed nodes versus 1 and 11 collapsed nodes for *K*2 and *K*3 trees, respectively. All cladograms for each of these searches preserved clades of interest for Gabuniina as a whole (Figs. 2, 5), and for the proposed new genera (Figs. 3–4, 6–7).

All weighted searches recovered a clade with 30 Gabuniina genera, supported by a single, non-homoplasious character state (42:1, petiole spiracle approximately at middle). Relationships among the taxa within Gabuniina were also similar in these searches. *Fenixia* n. gen. appears in a collapsed clade on searches with *K*1, but is associated with *Lagarosoma* on all searches with *K*2–3 (Figs. 3, 6); *Dineotropica* n. gen., in its turn, was recovered forming a clade with *Cestrus* on all weighted searches, supported by at least two synapomorphies (33:0, hind wing vein M+Cu weakly convex, and 51:1, ovipositor subapically with a microsculptured area) (Figs. 4, 7).

Characters traditionally used to define Gabuniina (numbers 4, 42, 48 in Table 1) performed similarly in each analysis (Figs. 2, 5, arrows), generally showing comparatively high Ci and Ri values for the re-

Table 1. Character coding. Abbreviation: *n/a*, non-applicable.

No.	Description
01	Clypeal margin, number of median teeth 0 [0], 1 [1] or 2 [2], even if small
02	Mandible with ventral tooth longer than dorsal [0]; equal size [1]; ventral tooth shorter than dorsal [2]
03	Epomia short and weak [0]; long and strong [1]; represented by a group of wrinkles, rather than a single carina [2]; absent [3]
04	Fore tibia of female regular-looking [0]; swollen, basally constricted [1]
05	Sternaulus complete, reaching middle coxa [0]; incomplete, reaching 0.45–0.65 of the distance to middle coxa [1]; absent [2]
06	Pleural carina absent [0]; distinct and complete [1]; distinct but weak and incomplete [2]
07	Fore wing length variation up to 125% [0]; more than 125% [1]
08	Fore wing vein 1-Rs+M straight or slightly convex [0]; concave or sinuous, even if slightly [1]
09	Fore wing crossvein 1m-cu about as long as vein 1-Rs+M [0]; distinctly shorter [1]; distinctly longer [2]; n/a (limit between veins indistinct) [–]
10	Fore wing bulla on vein 1-Rs+M central [0]; apical, reaching cell 1+2Rs or nearly so [1]; bulla absent [2]
11	Fore wing crossvein 1m-cu straight or uniformly curved [0]; sinuous or somewhat irregular [1]
12	Fore wing without a short vein projection (ramellus) arising at meeting of veins 1m-cu and Rs+M [0]; a short projection present [1] (partially linked to character 14)
13	Fore wing limit between 1m-cu and 1-Rs+M distinct [0]; indistinct, veins perfectly continuous [1]
14	Fore wing vein 1M+Rs weakly and uniformly curved, or straight [0]; slightly sinuous ot weakly irregular [1]
15	Fore wing crossvein 1cu-a usually far from base of 1M+Rs (basad by more than 0.1 its own length) [0]; veins very close (approximately basad by 0.1 or apicad) or opposite [1]
16	Fore wing crossvein 1cu-a at approximately 90° with M+Cu [0]; distinct obtuse angle [1]; distinct acute angle [2]
17	Fore wing vein 2-Cu distinctly longer than crossvein 2cu-a [0]; nearly of the same length or 2cu-a slightly longer [1]; 2cu-a much longer than 2-Cu [2]; 2-Cu entirely absent [3]
18	Fore wing vein 2-Cu and 2cu-a aligned [0]; angled, even if slightly [1]; n/a [–]
19	Fore wing vein 4-Rs uniformly curved [0]; sinuous or irregular [1]
20	Fore wing crossvein 2m-cu with bulla mostly central to mostly ventral [0]; placed entirely or mostly on anterior 0.5 [1]; nearly reaching or reaching cell 1+2Rs [2]. Recoded in the matrix as 1, 0, 2 respectively, and run as additive.
21	Fore wing cell 1+2Rs (areolet) size, even if open, small [0]; large, about as tall as width of pterostigma [1]; not differentiated [–]
22	Fore wing crossveins 2r-m and 3r-m parallel or nearly so [0]; distinctly but slightly or moderately convergent towards anterior margin of wing [1]; strongly convergent [2]; n/a (areolet open or not differentiated) [–]
23	Fore wing veins 2-M and 3-M approximately of the same length, or one slightly shorter than the other [0]; 3-M distinctly longer than 2-M [1]; 2-M distinctly longer than 3-M [2]; n/a [–]
24	Fore wing crossvein 3r-m tubular, normal [0]; entirely or partly nebulous or spectral, including "with bulla" [1]; not differentiated, cell 1+2Rs open [2]; n/a (cell 1+2Rs not developed) [–]
25	Fore wing cell 1+2Rs pentagonal, or nearly square or circular, even if slightly taller than wide or if open [0]; transversely elongate [1]
26	Fore wing vein 4-M slightly to distinctly longer than 4-Rs [0]; nearly as long as, or shorter, than 4-Rs [1]; 4-M nebulous or spectral on apical half or more [2]
27	Hind wing vein 2-1A short, not reaching wing margin, or absent [0]; ending near or at wing margin [1]
28	Hind wing vein 1-Cu with nearly the same length as crossvein cu-a [0]; 1-Cu distinctly longer [1]; 1-Cu distinctly shorter [2]
29	Hind wing vein 2-Rs entirely tubular [0]; apical half or more nebulous or spectral [1]
30	Hind wing crossvein 1r-m entirely tubular [0]; with one bulla [1]
31	Hind wing veins 1-Rs and 2-Rs forming a distinct angle (cell R1 somewhat trapezoidal basally) [0]; continuous or nearly so (cell R1 pointed or lanceolate basally) [1] [coded as multi-state when doubtful or intermediate]
32	Hind wing veins 1-Cu and M at about 90° [0]; forming a distinctly acute angle [1]; forming a distinctly obtuse angle [2]

Table 1. Continued.

No.	Description
33	Hind wing vein M+Cu uniformly and weakly convex, or straight [0]; strongly convex [1]; concave [2]
34	Hind wing vein 1-R1 (the short section of R1 detached from wing margin) distinct [0]; not differentiated [1]
35	Anterior transverse carina of propodeum straight or weakly and uniformly curved [0]; strongly curved, trapezoidal or acuminate medially [1]; fused with posterior transverse carina [2]; absent [3]
36	Posterior transverse carina of propodeum present, even if interrupted centrally or indicated only by lateral crest or spines [0]; entirely absent [1]
37	Posterior transverse carina of propodeum uniformly convex, weakly or strongly, even if briefly interrupted centrally [0]; strongly bell-shaped or trapezoidal [1]; forming lateral crests [2]; forming lateral tubercles or spines [3]; n/a (absent) [–].
38	First metasomal tergite short and triangular, length/(maximum width − miniumum width) less than 4.0 [0]; regular, somewhat elongate $lg/(w_{max} - w_{min})$ 4.0–6.0 [1]; long and slender, $lg/(w_{max} - w_{min})$ over 6.0 [2]
39	First metasomal tergite without a basolateral triangular tooth [0]; tooth present, even if vestigial [1]
40	First metasomal tergite without an *extra* basolateral triangular tooth [0]; extra tooth present [1]
41	First metasomal tergite without dorsolateral carina [0]; partially developed [1]; complete [2]
42	Spiracle of first metasomal tergite placed beyond middle [0]; at or basad of middle [1]
43	T7-8 in lateral view of similar size or shorter than T5-6 [0]; distinctly wider [1]
44	Upper valve of ovipositor in lateral view distinctly widest preapically, the nodus tall, giving triangular aspect to apex [0]; width decreasing uniformly, nodus weak or not evident, apex not triangular [1]
45	Upper valve of ovipositor apically straight or nearly so [0]; distinctly downcurved [1]; distinctly upcurved [2]
46	Upper valve of ovipositor apically without serrations [0]; serrations present [1]
47	Upper valve with preapical notch [0]; absent [1]; modified structure [2]
48	Lower valve of ovipositor apically regular, not dilated [0]; dilated and overlapping upper valve as a lobe [1]; apically widened to cover entire tip as a sheath [2]
49	Lower valve of ovipositor with serrations along entire tip [0]; restricted to the very tip, or serrations absent [1]
50	Ovipositor tip with upper valve apex blunt or only moderately pointed [0]; ending in a long and narrow point [1]
51	Ovipositor just basad of apical teeth smooth and polished [0]; with a distinctly microsculptured area [1]

spective trees, as follows. Character 4 (swollen fore tibia of female) with Ci 12–14 and Ri 78–81; character 42 (T1 with spiracle at or behind middle) with Ci and Ri = 100 in all implied weighting cladograms; and character 48 (lower valve with lobe enclosing upper valve) with Ci 33 and Ri 87 also in all cladograms.

DISCUSSION

Preferred cladograms.—The ambiguous results obtained with *K*1 searches point to a negative consequence of the maximized weight given to a few, less homoplasious characters in the matrix. This clearly depreciated most of the already weakly informative characters, to a point where *K*1 searches could have mimicked unweighted searches, which were mostly uninformative. Cladograms obtained with *K*2–3 seem therefore to represent the best possible results with the available information in the character set of Table 2, and because of this are adopted as the preferred phylogenetic interpretation.

Gabuniina.—In spite of a few differences at the base of the respective clade, the weighted analyses generally corroborate the idea that the Gabuniina of authors might be a monophyletic group. They also

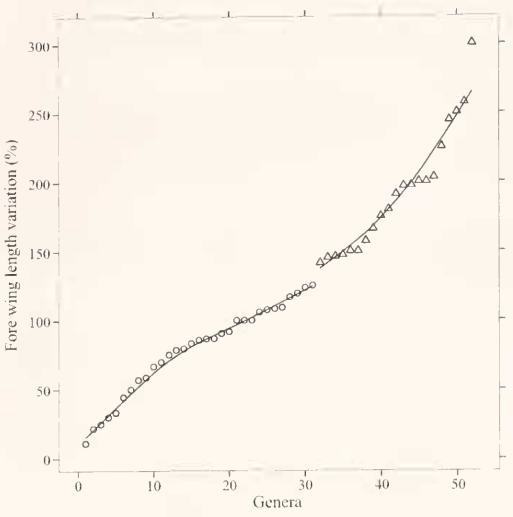


Fig. 1. Plotted data for character 7 (Table 1), with regression lines showing two distinct tendencies (concave vs. convex lines) for the known percentage of variation of the fore wing length, for the genera listed in Table 2.

generally confirmed the relevance of characters traditionally used in the literature (numbers 4, 42, and 48, Table 1) to define and characterize the subtribe, lending support to Gabuniina plus a few basal taxa (particularly Ceratocryptina), or to Gabuniina minus a few of its basal taxa. The marked phylogenetic importance of these characters is also suggested by their comparatively high values of Ci and Ri.

The repeated presence of *W. singularis*, and other Ceratocryptina as well, at the base of the Gabuniina clade suggests that this group, or possibly the genus *Wuda* as a whole, may represent a basal member of Gabuniina, or its sister taxa. The implied weighting results also support the suggestion of Gupta and Gupta (1983) that the genera of Gabuniina "appear to form two distinct groups" based on the presence/absence of the pleural carina (ch. 6, Table 1). This character showed high values of Ci (66–100) and Ri (91–100) on all cladograms, suggesting that Gabuniina with a pleural carina may represent a monophyletic group. Gupta and Gupta (1983) also suggested similar groups based on the number of clypeal teeth (ch. 2), and on the comparative length of hind wing vein 1-Cu and crossvein cu-a (ch. 28), but this is not supported by the current analyses, with very low Ci and Ri values for both these characters.

Relationships of Fenixia *and* Dineotropica.—Results clearly indicate that these taxa must be assigned to Gabuniina, as defined in the literature and as recovered here. *Fenixia* n. gen. and *Dineotropica* n. gen. also appear to be only distantly related to one another, each being recovered within its own large and distinct clade, and therefore isolated from each other by numerous steps. At the same time, *Fenixia* seems most closely related to *Lagarosoma* Gupta, the two forming a clade supported by an identical set of synapomorphies (Figs. 3, 6). Such relationship is further corroborated by the fact that both these genera are known exclusively from southeastern Brazil.

The close relationship of the central Amazonian *Dineotropica* with the essentially Mexican *Cestrus* seems evident by the sharing of a unique feature within Gabuniina, the ovipositor apex with a microsculptured area just basad of apical teeth (ch. 51:1), as well as the hind wing with a weakly convex vein M+Cu (ch. 33: 0), and the propodeum with posterior transverse carina strong, complete. Nonetheless, the uniqueness of *Dineotropica* is evident by at least 9 apomorphies, repeatedly recovered for this genus in all *K*1–3 cladograms (Figs. 4, 7).

DESCRIPTIONS OF NEW TAXA

Fenixia Aguiar, n. gen.

Figs. 8–12

Type species.—*Fenixia curta* Aguiar, by monotypy and present designation.

Description.—Fore wing 6.3–10.7 mm long. Frons finely granulose, with a short median carina developed near anterior ocellus only. Clypeus weakly convex, more projected ventrally, the apex trun-

cate and with a median tooth. Mandible 1.5 as long as basal width, dorsal tooth as long as ventral tooth. Occipital carina meeting hypostomal carina. Epomia short and weak. Sternaulus sharp and reaching middle coxa. Epicnemial carina distinct along entire height of mesopleurum. Hind margin of metanotum without projections on each side of postscutellum. Area between metanotum and propodeum moderately deep, narrow, forming a polished smooth trough. Propodeum as long as wide. Propodeal spiracle oval elongate. Pleural carina absent. Propodeum in front of basal carina punctate and allutaceous; behind basal carina transversely rugulose to rugose. Juxtacoxal carina absent. Apical carina of propodeum indistinct, or indicated by weak lateral crests.

Fore wing cell 1+2Rs about as long as width of pterostigma, a little higher than wide, cross veins 2r-m and 3r-m distinctly convergent, about same length. Ramellus absent. Crossvein 1cu-a slightly but distinctly basad of vein 1M+Rs. Hind wing vein 1-Cu 1.9 length of crossvein cu-a; 2–1A reaching 0.5–0.8 the distance to wing margin. Fore tibia in female moderately swollen. Fourth segment of all tarsi deeply bilobed. First metasomal tegite with a distinct lateral triangular tooth at the base; dorsolateral carina absent; spiracle exactly at middle; sternite about 0.43 the length of tergite. Ovipositor 1.2 as long as hind tibia, projecting beyond metasoma for half of its own length; ovipositor sheath about 0.65 as long as hind tibia. Lower valve of ovipositor with a weak to distinct subapical lobe that partly encloses upper valve; apex with 8 teeth.

Etymology.—A reference to the city of Fênix (Paraná, Brazil), the collecting locality for one of the paratypes.

Comments.—The genus runs to *Dagathia* Cameron in the key provided by Townes (1970) for the world genera of Gabuniina, but can be isolated from this Oriental genus by having mandible teeth of equal size (vs. ventral tooth a little longer), epomia small (vs. long and strong), fore wing vein 4-Rs sinuous (vs. straight), cell 1+2Rs large and pentagonal, 2r-m and 3r-m convergent, 2–1A not reaching wing margin, and ovipositor sheath very short, 0.7 as long as hind tibia (vs. 1.1 as long). According to the cladistic analyses, *Fenixia* also seems related to the sympatric genus *Lagarosoma* Gupta, from which it can be isolated by the clypeus margin with one tooth (absent in *Lagarosoma*), fore wing 2-Cu distinctly longer than 2cu-a (vs. much shorter), crossvein 1cu-a very close or opposite 1M+Rs (vs. far from base), cell 1+2Rs higher than wide (vs. wider than high), 2r-s and 3r-s about same length (vs. 3r-s distinctly longer), and basal carina of propodeum strong and distinct (vs. indistinct or absent). Other distinctive character states are indicated on the respective cladogram (Figs. 2, 5) and key to neotropical genera, below.

Fenixia curta Aguiar, n. sp.
Figs. 8–12

Description.—Female (holotype). Fore wing 10.7 mm long. Clypeus weakly convex, more projected ventrally, the apex truncate and with a median tooth. Mandible teeth of equal length. Occipital carina low and sharp throughout, joining the weakly raised hypostomal carina below. Pronotum: epomia weak, sharp, and short, distinct only in between dorsal and ventral yellow marks; area behind epomia, in between yellow stripes, with longitudinal rugulosity. Mesonotum: notauli deep, converging posteriorly, blending with longitudinal rugulosities on and behind central yellow spot; notauli and rugulosities ending far from scuto-scutellar groove. Scutellum micropunctate. Mesepisternum finely obliquely strigate, stronger dorsally; epicnemial carina entirely distinct; sternaulus strongly sinuous, distinct from epicnemial carina to base of hind coxa; without any indication of a depression between sternaulus and speculum. Metapleuron densely rugulose. Propodeum

Table 2. Character matrix for selected taxa of Cryptini. Subtribes (*Subt.*): *Agrt*, Agrothereutina; *Barc*, Baryceratina; *Cert*, Ceratocryptina; *Coes*, Coesulina; *Cryp*, Cryptina; *Gabn*, Gabuniina; *Glod*, Glodianina; *Gory*, Goryphina; *Lymn*, Lymeonina; *Meln*, Melanocryptina; *Mest*, Mesostenina; *Ospr*, Osprynchotina. Polymorphism: *a*, 01; *b*, 12; *c*, 02; *d*, 03.

Subt.	Species	1 10 20 30 40 50
Gabn	Agonocryptus discoidaloides	10?1001100 1001001001 1021001001 101a001000 0111001100 0
Gabn	Ahilya bicornigera	1101010??? ?????????. 00?00??0?? ????0a??10 0111101100 0
Gabn	Amrapalia multimaculata	10010000-? 0010001100 1100011100 020??01010 b1???????? 0
Gabn	Anepomias splendidus	10011?0-1 0011011000 1100001000 11a001-100 0011001100 0
Gabn	Apocryptus praeciarus	2111110000 0000111000 1001001101 0000100100 2110001100 0
Gabn	Arhytis maculiscutis	1011000100 0011001001 1001011c01 12a001-010 a111000100 0
Gabn	Cestrus calidus	1111011010 0000010001 1201001101 0000100010 0111000100 1
Gabn	Cryptohelcostizus alamedensis	0011200020 1011001010 1201011001 a00a01-000 0111001100 0
Gabn	Dagathia multimaculata	1111a001-0 0000001011 1020011100 1100002010 a111001100 0
Gabn	Digonocryptus crassipes	bad10110-0 0011101101 1001001100 1010100010 a111001100 0
Gabn	**Dineotropica lissa** n. sp.	000101?1-0 0011101010 1021011001 1101000100 011100?100 1
Gabn	Dinocryptus niger	10a0a20112 1001001000 1021011000 0000200010 1111001100 0
Gabn	Eurycryptus fondamentalis	00110000-2 0010001010 1001?11000 1010000010 0011011100 0
Gabn	**Fenixia curta** n. sp.	11010000-0 0011011011 1101000101 10110a2010 0111000100 0
Gabn	Gabunia ruficoxis	1011200020 0001011100 1211011000 a00001-100 0111001100 0
Gabn	Gerdius cinctus	01d0010100 0000021101 001?011001 10a0000010 2111000100 0
Gabn	Hackerocryptus dentatus	113??0?110 0000011100 0--2-021?? ?????1-000 ?1?1001000 0
Gabn	Hadrocryptus sp.	a10100?000 1001001001 1001011100 1100102010 0111000100 0
Gabn	Kriegeria heptazonata	1111010110 0001102110 0000001c01 121011-010 c111000100 0
Gabn	Lagarosoma assitum	023100001? 000?102110 112110013? ??1?01-100 011100?100 0
Gabn	Lophoglutus bouceki	103?000100 0000111110 0--20011?? ????102010 ?0?1001100 0
Gabn	Microstenus canaliculatus	0011000000 0010001100 0--2011000 0010000010 2011011100 0
Gabn	Nesolinoceras ornatipennis	100100?0-1 0010010002 1201001001 001001-000 0111001100 0
Gabn	Pharzites sp.	0121000000 1000010000 1111011200 001001-010 0111001100 0
Gabn	Prosthoporus terani	020111???? ????0????? 10111?22?? ??1?01-?00 0111001100 0
Gabn	Pterocryptus uchidai	10110100-0 0011001100 1101011200 a010002000 0111001100 0
Gabn	Schreineria annulata	00d1100100 0001002000 0002011200 a20001-011 011100?100 0
Gabn	Spathacantha apicallis	113101?110 0001002101 1120001200 00a001-011 2111000100 0
Gabn	Tanepomidos assamensis	121101001? 000010111a 0001001000 021?00aa10 2101000100 0
Gabn	Torbda geniculata	b011b01000 101?012000 1121111000 10a011-000 1111001100 0
Gabn	Trypha atriceps	01310000-0 0010001000 1001001001 101031-100 0101001a00 0
Gabn	Xanthocryptus vesiculosus	10d1a01100 0001011001 0020001000 011001-010 0111001100 0
Gabn	Xoridesopus sp.	1000011100 0001001000 1001011001 001001-010 2111001100 0
Gabn	Xoridesopus verticalis	1001011100 0001001000 111?011000 0010000010 2111001100 0
Agrt	Agrothereutes abbreviatus*	01a01?1--- ----1----- -------1-- ----102010 1000000000 0
Agrt	Agrothereutes sp.	01a01?1001 1100100002 1001000101 0011102010 1000000000 0
Agrt	Gambrus incubitor	11301?10-1 0010100002 1001021100 1011000010 1000000000 0
Agrt	Trychosis neglecta	11101?1000 1000101100 1000001001 000100100? ?000000000 0
Barc	Baryceros texanus	?210a?1100 1000101011 0-22011100 a011103000 0011111000 0
Cert	Aprix nutatorius	01300??100 0001100111 0020001101 a1a0002110 ?000001000 0
Cert	Ceratocryptus bituberculatus	00300?01-0 1011000111 0020101100 0001000200 0000000001 0
Cert	Chamula reliqua	01100?0010 0011001010 0000001100 10aa100110 000??????? 0
Cert	Lorio austerus	11101c1112 0000001110 0000011101 a100002110 ?010001000 0
Cert	Trachyglutus polychromus	11010??110 0000101111 0-02002101 1011102000 1011001000 0
Cert	Wuda singularis	01301?0110 0000111010 0----12101 0110000010 0011001100 0
Coes	Coesula fulvipes	01a00?0000 0000101110 0-02001101 001010a010 2000000000 0
Cryp	Caenocryptus shikokuensis	01?00?1000 1100101011 1101001101 10a0100000 2000000001 0
Cryp	Dotocryptus bellicosus	00?00?0021 1001100010 1000001000 0001101100 000?001200 0
Cryp	Ischnus inquisitorius	?1?01?1010 1000101112 1201000100 a011002010 1000000001 0
Cryp	Lanugo retentor	01?01?1000 1000110011 1001001101 0001001010 2000000001 0

Table 2. Continued.

Subt.	Species	1	10	20	30	40	50
Cryp	Trachysphyrus cleonis	01?00?1021	1001100012	1201001a01	a020103000	1000000000	0
Cryp	Trachysphyrus cyanipennis	01?00?1022	1100110012	1000001a01	a100103000	1001101000	0
Cryp	Trachysphyrus lachnaels	01?00?10-0	0011100012	1201011a01	0001103000	1000000000	0
Cryp	Trachysphyrus tucman	01?00?1001	1100100012	1011000a01	a000100000	1000200001	0
Cryp	Xylophrurus dispar	10?10?0000	0100100111	1201001001	00a1000000	2001000100	0
Glod	Glodianus sp.	0?100?0120	0001101011	0020001100	0011001200	0001011001	0
Gory	Buodias longidentatus	?1a00?0021	0000101112	1001001101	00a0003110	2000000000	0
Gory	Buodias ruficoxis	?1a00?1100	0000111111	1021111101	a0a0102110	2001001000	0
Gory	Biodias sp.	?1a00?1020	10?0101111	1021001100	12a001-110	2000000011	0
Gory	Goryphus basilaris	a1100?1000	0000100111	10010?1101	a010002010	2000000000	0
Gory	Goryphus communis	a1100?1100	0000101111	0001001101	a01a002010	2000000000	0
Gory	Listrognathus pubescens	?1101?1120	0000000011	1021001101	001a101010	2001002000	0
Gory	Necolio imperialis	01d01?1100	0001110111	1021001101	a0a0102110	a000000011	0
Gory	Necolio sp.	01d01?1100	0001100111	1020001100	10a1001110	a001000010	0
Lymn	Bicryptella vera	0b100?00-0	0010100100	0000001101	a21a100000	?001101000	0
Lymn	Lymeon orbus	2b?10?1100	1000102100	1-02000101	1211002000	0000000000	0
Lymn	Pachysomoides fulvus	0b100?0100	0000110010	0-02001101	0210101000	2000000011	0
Lymn	Polycyrtidea flavopicta	0b101?0010	0001103-10	0-02002-11	1011000200	0000000001	0
Meln	Melanocryptus sp. A	12001?1100	0000100110	1101001101	0000103100	101a001000	0
Meln	Melanocryptus sp. B	12001?1100	0001111111	1111001101	a010002100	1010001000	0
Mest	Mesostenus transfuga	01100?1100	0010a00011	0-221c1110	0000100110	?001000010	0
Ospr	Osprynchotus gigas	00110?0110	0101121011	1211011200	000011-2?0	?001000200	0

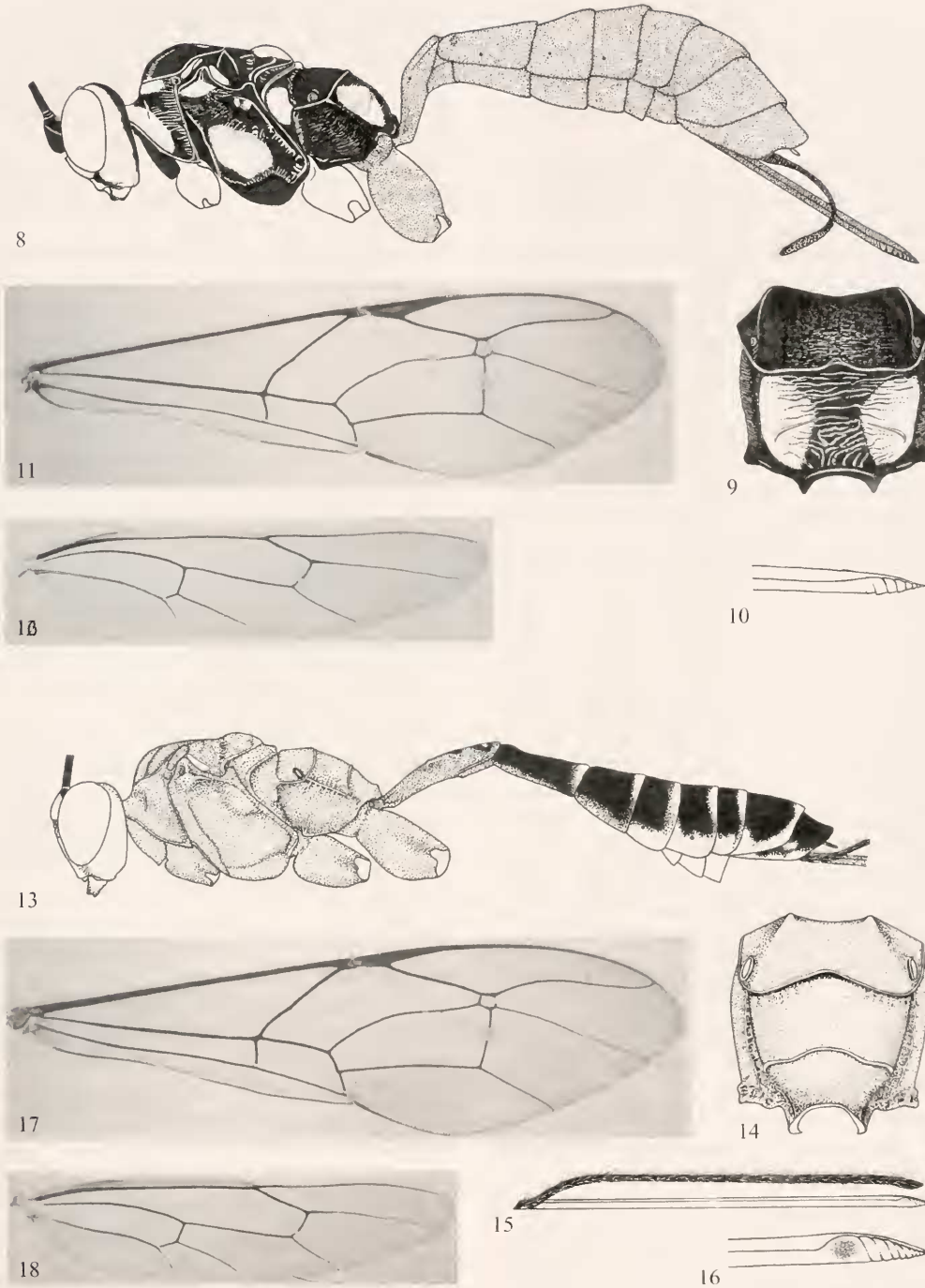
* Corrected spelling for *Agrothereutes abbreviator* according to Horstmann (2001).

scarcely pilose; anteriorly shallowly punctate near anterior transverse carina, the punctures becoming progressively more scarce towards axillary trough; this area also distinctly and densely alutaceous; area posterior to transverse carina transversely rugose; spiracle weakly oval, almost circular; anterior transverse carina low, straight, except weakly arched centrally; propodeal apodeme represented by low carina on center of lateral yellow spot; pleural carina indistinct. Legs: all preapical tarsomeres deeply bilobed. Metasoma: T1 dorso-lateral carina distinct only from spiracle to apical margin; T1–4 very finely microsculptured, much stronger and matt on T2; then gradually changing from alutaceous on T5 to almost polished smooth on T8; T8 weakly to strongly convexly folded centro-longitudinally. Ovipositor sheath dilated and spoon-shaped on its apical 0.3; lower valve of ovipositor with 8 apical teeth; upper valve with tiny subapical notch. Wing venation as described for the genus.

Color.—Head and mesosoma black with yellow marks; metasoma reddish. Head: scape, pedicel, flagellomeres 1–3, and basal 0.8 of 4th, black; apex of 4th, 5–8 entirely, and most of 9th, yellow; 10–13 dark brown, 14 to apical entirely brown; 28 flagellomeres total on both antennae, the apical one moderately compressed and protruded at apex. Orbital band yellow, complete except very briefly interrupted at bottom of eye; taking entire width of gena ventrally, gradually narrowing dorsally to as narrow as 0.4 the distance between eye margin and occipital carina at temple; width at frons and face about 0.25 interocular distance; face mostly yellow, partly fusing with yellow of orbital band; clypeus yellow, with wide black area isolating it from yellow of face and orbital band; also yellow on labrum, large spot taking basal 0.4 of mandible, and labial and max-

Figs. 2–7. Summary of clades containing the Gabuniina of authors, and clades containing the genera *Fenixia* and *Dineotropica*, preserved on trees obtained with implied weighting searches. 2, Clades from the strict consensus of 3 trees obtained with searches for $K = 2$. 3, Same, for section of tree containing *Fenixia*. 4, Same, for *Dineotropica*. 5, Clades from the strict consensus of 29 trees obtained with searches for $K = 3$ (default value). 6, Same, for section of tree containing *Fenixia*. 7, Same, for *Dineotropica*. The arrows indicate characters traditionally used to define the subtribe Gabuniina. Subtribe abbreviations: BARC, Baryceratina; CERT, Ceratocryptina; GABN, Gabuniina; GLOD, Glodianina; LYMN, Lymeonina.

illary palpi, except for brown apical article. Mesosoma black, except yellow as follow: broad band on pronotum along anterior and ventral margins, ending distinctly before reaching posterior corner, barely interrupted centro-anteriorly, and a moderately wide band on central 0.7 of dorso-lateral margin; diffused marks on prosternum basally; large hexagonal spot taking about 30% of mesopleuron; all subalarum and tegula; small spot dorsally on speculum; central subcircular spot on metanotum, in between area of convergence [illegible] scutellum and post-scutellum entirely; axillary trough except small area mesally; large subtriangular spot on each side of propodeum, behind posterior transverse carina, each one about 0.3 as wide as propodeal width. Legs: fore and mid coxae, except mesally, pale yellow, large spot dorso-basally, at level of dorsal articulation of hind coxa, yellow; hind coxa, trochanter and femur red-brown; fore and mid trochanters, femora, and basitarsomere yellowish brown, with blackish centrally; all tibiae and tarsomeres 1–4 of hind leg golden yellow; tarsomeres 3–5 of fore and mid legs, and apical tarsomere of



Figs. 8–18. *Fenixia curta* n. sp. Holotype ♀: 8, Habitus, left. 9, Propodeum, dorsal. 10, Tip of ovipositor, left. Paratype ♀: 11, Right fore wing. 12, Right hind wing, same paratype. Figs. 13–18. *Dineotropica lissa* n. sp. Holotype ♀. 13, Habitus, left. 14, Propodeum, dorsal. 15, Ovipositor and sheath, left. 16, Tip of ovipositor, left. 17, Right fore wing. 18, Right hind wing. Drawings by Gláucia Marconato.

hind leg, dark brown. Metasoma dark red, basal segments darker than apical segments; corners of T1 yellowish. Ovipositor dark red; sheaths dark brown. Wings hyaline.

Male.—General morphology and color similar to female, except for yellow tones clear and bright; orbital band not interrupted; face and clypeus entirely yellow; speculum entirely yellow; T1 apical margin with distinct yellow stripe. Male from Água Funda with yellow marks also on mesosternum, near base of coxa and along sternaulus.

Material.—15 ♀♀, 2 ♂♂. Holotype ♀ DZUP "N. Teutônia-S.C., Brasil-XI/1967, F. Plaumann leg." Paratypes: DZUP: ♀♀, "N. Teutônia, SC, Brasil-XI/1967, F.Plaumann leg."; "P. Grossa (Vila Velha), PR, Reserva IAPAR, BR 376, Brasil, 15.IX.1986, Lev. Ent. PROFAUPAR, Malaise" (3 specimens); same, 06.X.1986; same, 11.VIII.1986; "Jundiaí do Sul, PR, Fazenda Monte Verde, Brasil, 24.XI.1986, Lev. Ent. PROFAUPAR, Malaise" (2 specimens); same, 15.XII.1986; "São José dos Pinhais, PR, Serra do Mar, BR 277, Km 54, Brasil, 16.III.1987, Lev. Ent. PROFAUPAR, Malaise"; "Curitiba, PR, CI, 28.XII.1976–10.I.1977, V. Graf leg."; "Curitiba, PR, Brasil, 09.XI.1978, F. Giacomel leg"; "Colombo, PR, EMBRAPA, BR 475, Km 20, Brasil, 22.IX.1986, Lev. Ent. PROFAUPAR, Malaise"; ♂, "Fênix, PR, 03.X.1986, A. F. Kumagai col"; ♀, "Blumenau, SC, Brasil, V. Graf leg.". MZUP: ♂, "São Paulo, Água Funda, SP, 21.VIII.1967, Curso D.Z."

Variability.—General morphology: rugulosity laterally on pronotum sometimes very weak; propodeal apodeme sometimes entirely absent, not even indicated as a low carina; metapleuron sometimes densely pilose. Color: Yellow may change to pale yellow or almost white in small specimens; extension of yellow on face and clypeus highly variable, from entirely and continuously yellow in female from Monte Verde (15.XII) to widely black in between these areas, forming an "M" or "H" figure, as in female from Blumenau. Prosternum entirely black to mostly yellow; yellow on speculum varying from small spot dorsally to yellow on its 0.8 dorsal; shape and size of yellow area on metapleuron highly variable, taking up to [illegible] surface area. On smallest female examined (from Monte Verde, 24.XI), black replaced by dark brown, and hind coxa without yellow spot. Female from São José dos Pinhais with ovipositor sheath yellow on inner surface.

Etymology.—From the Latin *curtus*, meaning short; in reference to the length of the ovipositor sheath.

Distribution records.—Southern and southeastern Brazil (SC, PR, SP).

Dineotropica Aguiar, n. gen.

Figs. 13–18

Type species.—*Dineotropica lissa* Aguiar, by monotypy and present designation.

Description.—Fore wing 16.1 mm long. Frons smooth, with a short median carina developed centrally only. Face with a strong U-shaped fold from one antennal foramen to the other. Clypeus flat, apical 0.3 truncate, apical margin uniformly blade–like, translucent, without a median tooth. Mandible 1.67 as long as basal width, ventral tooth distinctly longer than dorsal tooth. Occipital carina meeting hypostomal carina. Epomia short and weak. Sternaulus sharp and reaching middle coxa. Epicnemial carina curving posteriorly and ending near subalarum. Hind margin of metanotum regular, but front margin of propodeum with strong tooth-like projections towards each side of postscutellum. Area between metanotum and propodeum moderately deep, wide in between tooth-like projections, narrow laterad of it, forming a polished smooth trough. Propodeum about 1.25 as long as wide. Propodeal spiracle large, elongate. Pleural carina strong, with cross ridges along its length. Propodeum entirely polished smooth; both anterior and posterior transverse carinae conspicuous and complete; the anterior carina regular and somewhat acuminate, the posterior carina more projected centrally, laterally expanded into a somewhat translucent crest. Juxtacoxal carina strong but small.

Fore wing cell 1+2Rs about as long as width of pterostigma, about 1.15 wider

than higher, crossveins 2r-m and 3r-m approximately parallel, about same length. Ramellus absent. Crossvein 1cu-a distinctly but shortly basad of 1M+Rs. Hind wing vein 1-Cu 1.3 length of crossvein cu-a; vein 2–1A ending very near wing margin. Fore tibia in female distinctly swollen. Fourth segment of all tarsi moderately to deeply bilobed. First metasomal tergite at base with a lateral flange, without a triangular tooth; dorsolateral carina absent; ventro-lateral carina present, more distinct apically, beyond spiracle; spiracle at basal 0.47, strongly protuberant; sternite about 0.61 the length of tergite. Ovipositor 1.74 as long as hind tibia, projecting beyond metasoma for 5 times its own length; ovipositor sheath about 1.44 as long as hind tibia. Lower valve of ovipositor with a distinct subapical lobe that encloses most of upper valve; apex with 9 teeth.

Etymology.—From the Greek *dynos*, meaning large, in reference to the body size, and informal reference to the Neotropical region, where the species was collected.

Comments.—The genus runs to *Cestrus* Townes in the key provided by Townes (1970) for the world genera of Gabuniina, but can be isolated from it by having a very short epomia (vs. long), propodeum fully smooth in front and behind both transverse carinae (vs. rugulose in between carinae), petiole elongate, almost straight in lateral view (vs. short and distinctly bent centrally), petiolar spiracle in lateral view fully dorsal (vs. centered), fore wing vein 2-Cu nearly of the same length of crossvein 2cu-a (vs. distinctly longer), areolet subquadrate, crossveins 2r-m and 3r-m nearly parallel (vs. distinctly pentagonal, 2r-m and 3r-m strongly convergent anteriorly), vein 2-M much longer than 3-M (vs. nearly of same length), and clypeus margin without a tooth (vs. usually with a tooth).

Dineotropica lissa Aguiar, n. sp.

Figs. 13–18

Description.—Female (Holotype). Fore wing 16.1 mm long. Clypeus and Mandible as for the genus description. Occipital carina low and sharp throughout, joining the weakly raised hypostomal carina. Pronotum entirely polished smooth; epomia strong, sharp, short, transverse. Mesonotum: notauli anteriorly distinct, on posterior half weakly convergent and fused to dense longitudinal rugulosities, which end at scuto-scutellar groove; mesonotum otherwise weakly alutaceous. Scutellum with micropunctures derived from weak pilosity. Mesepisternum polished smooth; epicnemial carina ending near, but not at, subalarum; sternaulus strongly sinuous, sharp and narrow from epicnemial carina to base of hind coxa; without any indication of a depression between sternaulus and speculum. Metapleuron mostly polished smooth, with weak transverse rugulosities on its posterior 0.25. Propodeum mostly polished smooth, scarcely pilose; spiracle large and elongate; anterior and posterior transverse carinae strong and complete; anterior carina crossing shaft between propodeum and metanotum, ending on carinal triangle; posterior carina laterally somewhat raised, forming a crest, ending on pleural carina, which is strong, complete. Legs: all preapical tarsomeres deeply bilobed. Metasoma: first metasomal tergite, spiracle and sternite as in the genus description; T1 with a few punctures centrally, otherwise polished smooth; T2 with weak oblique creases; T3–8 polished smooth, densely covered by short golden pilosity. Ovipositor valves and sheath as in the genus description. Wing venation as described for the genus.

Color.—Head: scape yellow; pedicel, flagellomeres 1–2, and basal 0.9 of 3rd, black; apex of 3rd, 4–10 entirely, and most of 11th, yellow; 12th to apical entirely dark brown; 22 flagellomeres total, the apical one moderately compressed and protruded at apex. Orbital band yellow, complete except very briefly interrupted at bottom of eye; taking entire width of gena; narrowing dorsally to as narrow as 0.4 the dis-

tance between eye margin and occipital carina at temple; face, clypeus, and labrum entirely yellow; labial and maxillary palpi brownish; mandible basally orange, its teeth black. Mesosoma, including propodeum, reddish brown, darker dorsally. Legs reddish brown except yellowish to yellow fore to hind tibiae; tarsi darker from base to apex. Metasoma black; T1 dark red on basal 0.7, black apically, with yellow spot on central 0.5 of apical margin; T2–6 black, with yellow stripe on apical and lateral margins, apical stripe interrupted laterally, not fused to lateral stripe; T7 black, with yellow stripe on apical and lateral margins, fused and continuous; T8 black with yellow stripe on ventral margin only. Ovipositor dark reddish brown; sheaths dark brown. Wings with brownish tint.

Male.—Unknown.

Material.—Holotype ♀ DZUP "Ouro Preto, d'Oeste, RO, {12-I?}-1987, C. Elias, leg"; "Projeto Polonoroeste."

Etymology.—From the Latin *lissos*, meaning polished, smooth; in reference to the body sculpture.

Distribution record.—Northwestern Brazil (RO).

KEY TO GENERA OF NEOTROPICAL GABUNIINA

1(0). Pleural carina present, even if incomplete 2
– Pleural carina absent 5

2(1). Hind wing vein 1-Cu distinctly longer than crossvein cu-a; clypeal margin centrally normally with one or two small teeth 3
– Hind wing vein 1-Cu nearly the same length or distinctly shorter than crossvein cu-a; clypeal margin centrally without a small tooth 4

3(2). Ovipositor just basad of apical teeth smooth; fore wing crossveins 2r-m and 3r-m more or less parallel; fore wing vein 2-Cu nearly as long as, or shorter than crossvein 2cu-a; hind wing vein M+Cu strongly convex ..... *Digonocryptus* Viereck
– Ovipositor just basad of apical teeth with a distinctly microsculptured area; fore wing crossveins 2r-m and 3r-m distinctly convergent toward anterior margin of wing; fore wing vein 2-Cu distinctly longer than crossvein 2cu-a; hind wing vein M+Cu weakly convex ..... *Cestrus* Townes

4(2). Posterior transverse carina of propodeum complete, strong; ovipositor just basad of apical teeth with distinctly microsculptured area; fore wing crossvein 1cu-a very narrowly basad of 1M+Rs; fore wing vein 2-M much longer than vein 3-M; fore wing vein 2Cu slightly longer than crossvein 2cu-a ..... *Dineotropica* n. gen.
– Posterior transverse carina of propodeum absent; ovipositor just basad of apical teeth smooth; fore wing crossvein 1cu-a basad of 1M+Rs by 0.3 its own length; fore wing vein 2-M distinctly shorter than vein 3-M; fore wing vein 2Cu much shorter than crossvein 2cu-a ..... *Prosthoporus* Porter

5(1). Clypeal margin centrally without a small tooth; first metasomal tergite somewhat elongate, maximum length/(maximum width—minimum width) about 4.2 6
– Clypeal margin centrally with one or two small teeth; first metasomal tergite relatively short and triangular, maximum length/(maximum width—minimum width) about 2.5–3.0 7

6(5). Propodeum polished, unsculptured, entirely devoided of carinae; hind wing vein 1-Cu somewhat shorter than crossvein cu-a; fore wing crossvein 1cu-a basad of 1M+Rs by 0.36 its length; fore wing vein 2-Cu with about same length as crossvein 2cu-a; fore wing vein 2-M approximately as long as vein 3-M ..... *Trypha* Townes
– Propodeum granulose to granulose-striate, the anterior transverse carina complete, al-

most straight; hind wing vein 1-Cu distincly longer than crossvein cu-a; fore wing crossvein 1cu-a narrowly basad or opposite vein 1M+Rs; fore wing vein 2-Cu greatly shortened, so that 3-Cu almost meets 1-Cu; fore wing vein 2-M distinctly longer than vein 3-M ..... *Lagarosoma* Gupta et Gupta

7(5). Fore wing cell 1+2Rs small, 0.2–0.3 as high as length of vein 2m-cu; fore wing vein 1-Rs+M with bulla placed centrally; fore wing hyaline or infuscate but never with dark bands 8

– Fore wing cell 1+2Rs very large, 0.50–0.95 as high as length of vein 2m-cu; fore wing vein 1-Rs+M with bulla apical, reaching cell 1+2Rs; fore wing hyaline, with three dark bands ..... *Nesolinoceras* Ashmead

8(7). Fore wing crossveins 2r-m and 3r-m parallel or nearly so; hind wing vein 1-Cu with nearly the same length or slightly shorter than crossvein cu-a; fore wing vein 2-M substantially longer than vein 3-M ..... *Agonocryptus* Cushman

– Fore wing crossveins 2r-m and 3r-m distinctly convergent towards anterior margin of wing; hind wing vein 1-Cu about twice as long as crossvein cu-a; fore wing vein 2-M approximately as long as vein 3-M ..... *Fenixia* n. gen.

ACKNOWLEDGEMENTS

David B. Wahl contributed with valuable suggestions, guidance, and ideas to this work. Ian D. Gauld and Andrew Bennett also contributed on an earlier stage of the manuscript. Gavin R. Broad, Ilari E. Sääksjärvi, Donald L. J. Quicke and an anonymous reviewer read the submitted manuscript and returned very useful suggestions, corrections and information. Vinalto Graf and Gabriel A. R. Melo loaned the specimens, after allowing the author to search the entire DZUP collection for unsorted Gabuniina. Elisa Queiroz Garcia provided shelter and good company during the author's stay at DZUP. Luciana Musetti, David Wahl, Santosh Gupta and Andrew Bennett helped with the literature. Rogério Rosa da Silva kindly calculated the graph for Fig. 1. Funding for this project was provided by FAPESP (Brazil), paid directly to the author (Processes 00/05704-6 and 03/08585-6), or acquired from specific funds allocated to this work in a connected project of C. Roberto F. Brandão (FAPESP process 98/05083-0).

LITERATURE CITED

Arnett, R. H., Jr., G. A. Samuelson, and G. M. Nishida. 1993. *The Insect and Spider Collections of the World*. Sandhill Crane Press, Gainesville, Florida.

Broad, G. R. and D. L. J. Quicke. 2000. The adaptive significance of host location by vibrational sounding in parasitoid wasps. *Proceedings of the Royal Society of London B* 267: 2403–2409.

Gauld, I. D., D. B. Wahl, K. Bradshaw, P. Hanson, and S. Ward. 1997. The Ichneumonidae of Costa Rica, 2. Introduction and keys to species of the smaller subfamilies, Anomaloninae, Ctenopelmatinae, Diplazontinae, Lycorininae, Phrudinae, Tryphoninae (excluding *Netelia*) and Xoridinae, with an appendix on the Rhyssinae. *Memoirs of the American Entomological Institute* 57: 1–485.

Goloboff, P. A. 1993a. Estimating character weights during tree search. *Cladistics* 9: 83–91.

Goloboff, P. A. 1993b. *NONA version 1.0*. Published by the author, San Miguel de Tucumán, Argentina.

Goloboff, P. A. 1997. *PIWE version 2.6*. Published by the author, San Miguel de Tucumán, Argentina.

Gupta, S. 1983. A revision of the genus *Prosthoporus* (Hymenoptera: Ichneumonidae). *Contributions of the American Entomological Institute* 20: 245–253.

Gupta, S. and V. K. Gupta. 1983. Ichneumonologia Orientalis, Part IX. The tribe Gabuniini (Hymenoptera: Ichneumonidae). *Oriental Insects Monographs* 10: 1–313.

Gupta, V. K. and J. K. Jonathan. 1970. The genera of the *Dagathia*-complex (Hymenoptera: Ichneumonidae). *Oriental Insects* 3: 389–393.

Gupta, V. K. and J. K. Jonathan. 1971. A new Mesostenine genus *Tanepomidos* from India (Hymenoptera: Ichneumonidae). *Oriental Insects* 5: 145–148.

Henaut, A. 1990. Study of the sound produced by *Pimpla instigator* (Hymenoptera: Ichneumonidae) during host selection. *Entomophaga* 35: 127–139.

Horstmann, K. 2001. Revision der von Johann Christian Fabricius beschriebenen Ichneumonidae (Hymenoptera). *Beiträge zur Entomologie* 51: 7–50.

Laurenne, N. M., G. R. Broad, and D. L. Quicke. 2003 (2002). Preliminary molecular phylogenetic analysis of Crytpinae and related taxa based on 26S D2+D3 rDNA analysed using POY. Pp. 229–233 in: Melika, G. and C. Thuroczy, eds. *Parasitic wasps: Evolution, Systematics, Biodiversity and Biological Control*. Agroinform, Budapest, Hungary.

Nixon, K. C. 1999a. The Parsimony Ratchet, a new

tance between eye margin and occipital carina at temple; face, clypeus, and labrum entirely yellow; labial and maxillary palpi brownish; mandible basally orange, its teeth black. Mesosoma, including propodeum, reddish brown, darker dorsally. Legs reddish brown except yellowish to yellow fore to hind tibiae; tarsi darker from base to apex. Metasoma black; T1 dark red on basal 0.7, black apically, with yellow spot on central 0.5 of apical margin; T2–6 black, with yellow stripe on apical and lateral margins, apical stripe interrupted laterally, not fused to lateral stripe; T7 black, with yellow stripe on apical and lateral margins, fused and continuous; T8 black with yellow stripe on ventral margin only. Ovipositor dark reddish brown; sheaths dark brown. Wings with brownish tint.

Male.—Unknown.

Material.—Holotype ♀ DZUP "Ouro Preto, d'Oeste, RO, {12-I?}-1987, C. Elias, leg"; "Projeto Polonoroeste."

Etymology.—From the Latin *lissos*, meaning polished, smooth; in reference to the body sculpture.

Distribution record.—Northwestern Brazil (RO).

KEY TO GENERA OF NEOTROPICAL GABUNIINA

1(0). Pleural carina present, even if incomplete 2
– Pleural carina absent 5

2(1). Hind wing vein 1-Cu distinctly longer than crossvein cu-a; clypeal margin centrally normally with one or two small teeth 3
– Hind wing vein 1-Cu nearly the same length or distinctly shorter than crossvein cu-a; clypeal margin centrally without a small tooth 4

3(2). Ovipositor just basad of apical teeth smooth; fore wing crossveins 2r-m and 3r-m more or less parallel; fore wing vein 2-Cu nearly as long as, or shorter than crossvein 2cu-a; hind wing vein M+Cu strongly convex ..... *Digonocryptus* Viereck
– Ovipositor just basad of apical teeth with a distinctly microsculptured area; fore wing crossveins 2r-m and 3r-m distinctly convergent toward anterior margin of wing; fore wing vein 2-Cu distinctly longer than crossvein 2cu-a; hind wing vein M+Cu weakly convex ..... *Cestrus* Townes

4(2). Posterior transverse carina of propodeum complete, strong; ovipositor just basad of apical teeth with distinctly microsculptured area; fore wing crossvein 1cu-a very narrowly basad of 1M+Rs; fore wing vein 2-M much longer than vein 3-M; fore wing vein 2Cu slightly longer than crossvein 2cu-a ..... *Dineotropica* n. gen.
– Posterior transverse carina of propodeum absent; ovipositor just basad of apical teeth smooth; fore wing crossvein 1cu-a basad of 1M+Rs by 0.3 its own length; fore wing vein 2-M distinctly shorter than vein 3-M; fore wing vein 2Cu much shorter than crossvein 2cu-a ..... *Prosthoporus* Porter

5(1). Clypeal margin centrally without a small tooth; first metasomal tergite somewhat elongate, maximum length/(maximum width—minimum width) about 4.2 6
– Clypeal margin centrally with one or two small teeth; first metasomal tergite relatively short and triangular, maximum length/(maximum width—minimum width) about 2.5–3.0 7

6(5). Propodeum polished, unsculptured, entirely devoided of carinae; hind wing vein 1-Cu somewhat shorter than crossvein cu-a; fore wing crossvein 1cu-a basad of 1M+Rs by 0.36 its length; fore wing vein 2-Cu with about same length as crossvein 2cu-a; fore wing vein 2-M approximately as long as vein 3-M ..... *Trypha* Townes
– Propodeum granulose to granulose-striate, the anterior transverse carina complete, al-